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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/695,211	10/28/2003	Steven Gerard Ross	136122CT	4501

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EXAMINER


HO, ALLEN C

ART UNIT	PAPER NUMBER
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2882

DATE MAILED: 03/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/695,211	Applicant(s) ROSS ET AL.	
	Examiner Allen C. Ho	Art Unit 2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 4-9 and 14-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 10-13, 20 and 21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 July 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the linear drive mechanism and the piezo-electric drive mechanism claimed in claims 3 and 13 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 3 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 3 and 13 claim a linear drive mechanism and a piezo-electric drive mechanism. It is unclear whether or not they are the same mechanism.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 2, 11, 12, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Wieczorek *et al.* (U. S. Patent No. 6,252,927 B1).

With regard to claims 1 and 2, Wieczorek *et al.* disclosed an imaging system comprising: a radiation source (32) configured to generate a beam; a collimator (3a, 3b) configured to collimate the beam to generate a collimated beam; a detector (2) configured to detect the

collimated beam, wherein the collimator comprises at least one radio opaque member (column 4, lines 7-10) having a curved contour proportional to a contour of the detector (they have the same contour since the collimator is attached to the detector).

With regard to claims 11 and 12, Wieczorek *et al.* disclosed a computed tomography imaging system comprising: an x-ray source (32) configured to generate a beam; a collimator (3a, 3b) configured to collimate the x-ray beam to generate a collimated x-ray beam; and a detector (2) configured to detect the collimated beam, wherein the collimator comprises at least one radio opaque member (column 4, lines 7-10) having a curved contour proportional to a contour of the detector (they have the same contour since the collimator is attached to the detector).

With regard to claim 20, Wieczorek *et al.* disclosed a method for reducing dosage of radiation incident on a subject, the method comprising: transmitting (32) a beam of radiation toward the subject; collimating (3a, 3b) the beam of radiation before the beam reaches the subject; and detecting, by a detector (2), the collimated beam of radiation, wherein the collimating is performed by a collimator that comprises at least one radio opaque member (column 4, lines 7-10) having a curved contour proportional to a contour of the detector (they have the same contour since the collimator is attached to the detector).

6. Claims 1, 2, 10-12, 20, and 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Popescu (U. S. Patent No. 6,501,828).

With regard to claims 1 and 2, Popescu disclosed an imaging system comprising: a radiation source (3) configured to generate a beam; a collimator (11) configured to collimate the beam to generate a collimated beam; a detector (4) configured to detect the collimated beam,

wherein the collimator comprises at least one radio opaque member (13, 14) having a curved contour proportional to a contour of the detector (column 5, lines 31-39).

With regard to claim 10, Popescu disclosed an imaging system in accordance with claim 1, wherein the collimator is located between a subject (P) and the radiation source.

With regard to claims 11 and 12, Popescu disclosed a computed tomography imaging system comprising: an x-ray source (3) configured to generate a beam; a collimator (11) configured to collimate the x-ray beam to generate a collimated x-ray beam; and a detector (4) configured to detect the collimated beam, wherein the collimator comprises at least one radio opaque member (13, 14) having a curved contour proportional to a contour of the detector (column 5, lines 31-39).

With regard to claim 20, Popescu disclosed a method for reducing dosage of radiation incident on a subject, the method comprising: transmitting (3) a beam of radiation toward the subject; collimating (11) the beam of radiation before the beam reaches the subject; and detecting, by a detector (4), the collimated beam of radiation, wherein the collimating is performed by a collimator that comprises at least one radio opaque member (13, 14) having a curved contour proportional to a contour of the detector (column 5, lines 31-39).

With regard to claim 21, Popescu disclosed an imaging system in accordance with claim 1, wherein the at least one radio opaque member comprises at least two cams (13, 14) positionable relative to each other to form a plurality of different sized apertures.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 3 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Popescu (U. S. Patent No. 6,501,828) as applied to claims 1 and 11 above, and further in view of Okazaki (U. S. Patent No. 5,801,939).

With regard to claims 3 and 13, Popescu disclosed a CT imaging system in accordance with claims 1 and 11. However, Popescu failed to disclose a piezo-electric drive mechanism configured to change the size of the aperture of the collimator.

Okazaki disclosed a precision positioning control apparatus comprising a coarse positioner (101) and a fine positioner (102). Okazaki taught a piezo-electric drive is capable of higher resolution than a coarse positioner (column 7, lines 27-36).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a piezo-electric drive mechanism, since a person would be motivated to change the size of the aperture in finer increments.

Response to Arguments

9. Applicant's arguments filed 05 January 2006 with respect to the drawings have been fully considered and are persuasive. The objection of the drawings has been withdrawn.

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10. Applicant's arguments filed 05 January 2006 with respect to claim 16 have been fully considered and are persuasive. The objection of claim 16 has been withdrawn.

11. Applicant's arguments filed 05 January 2006 with respect to claims 20 and 21 have been fully considered and are persuasive. The rejections of claims 20 and 21 under 35 U.S.C. 112, second paragraph, have been withdrawn.

12. Applicant's arguments filed 05 January 2006 with respect to the rejection(s) of claim(s) 1, 2, 10-12, 20, and 21 under 35 U.S.C. 102(b) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Wieczorek *et al.* (U. S. Patent No. 6,252,927 B1) and Popescu (U. S. Patent No. 6,501,828).

The examiner agrees with the applicants' argument that Swerdloff *et al.* failed to disclose a collimator that comprises at least one radio opaque member having a curved contour proportional to a contour of the detector.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- (1) Malamud (U. S. Pub. No. 2006/0039527 A1) disclosed a collimator (82) having a curved contour proportional to a contour of the detector.
- (2) Mahara *et al.* (U. S. Patent No. 6,731,716 B2) disclosed a collimator (36) having a curved contour proportional to a contour of the detector.

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- (3) Logan (U. S. Patent No. 5,418,833) disclosed a collimator having a curved contour proportional to a contour of the detector.
- (4) Braden *et al.* (U. S. Patent No. 4,190,773) disclosed a shutter for a rotating source CT scanner.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen C. Ho whose telephone number is (571) 272-2491. The examiner can normally be reached on Monday - Friday from 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward J. Glick can be reached at (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Allen C. Ho
Primary Examiner
Art Unit 2882

28 February 2006